

Chapter 8 – 1993 / 1998 Survey Comparison

This section compares, where possible, the data from the ARB's 1993 survey of 1990 data with the 1998 survey data. Appendix B contains relevant excerpts of the 1993 survey results. Table 8-1 presents a comparison of some overall data between the two surveys. The emissions figures in this table do include emissions from thinning and clean-up, which are calculated by assuming one pint of a solvent with a density of 6.4 pounds per gallon is used per gallon of solvent-borne coatings. Using the 1998 survey data, emissions from thinning and clean-up in 1996 amount to about 17 tons of VOC per day. Using the 1993 survey data, those emissions in 1990 were about 20 tons per day.

Table 8-1
Comparison of ARB's 1998 and 1993
Overall Architectural Coatings Survey Data

	1993 Survey (1990 Sales)		1998 Survey (1996 Sales)		Percent Change	
Total volume reported (gallons)	77.1 million		87.5 million		+13.5%	
Water-borne/solvent-borne split by volume	76%	24%	82%	18%	+22.4	-14.9
Total estimated annual average emissions ¹	126 TPD ²		117 TPD		-7.2%	
Water-borne/solvent-borne split by emissions ¹	28%	72%	33%	67%	+9.4	-13.6
Volume per capita (gallons per capita)	2.6		2.7		+3.9%	
Emissions per capita ¹ (pounds per capita)	3.1		2.6		-16.1%	

1 These emission estimates include emissions from thinning and clean-up.

2 This is a 1990 value. For comparison purposes, ARB's emissions inventory estimates emissions of 128 TPD in 1996.

Tables 8-2, 8-3, and 8-4 are a detailed comparison of sales, emissions, and sales-weighted average VOC_{regulatory} contents from the 1993 and 1998 surveys by category. Data not complying with the “Three Company Rule” have been excluded.

Table 8-2

Category	Overall Totals								
	Volume (gallons)			Emissions (tons per year)			Sales Weighted Average VOC regulatory		
	1993	1998	% Change	1993	1998	% Change	1993	1998	% Change
Anti-graffiti	38,000	2,500	-93	14	2	-86	135	225	67
Concrete curing compounds	197,000	411,000	109	112	163	46	217	195	-10
Dry fog	105,000	203,000	93	130	173	33	320	252	-21
Fire retardant, opaque	23,000	56,200	144	25	17	-32	267	86	-68
Flats	32,177,000	31,829,000	-1	5,977	5,310	-11	105	98	-7
Form release	10,000	83,000	730	16	12	-25	595	34	-94
Graphic arts (sign)	533,000	40,000	-92	905	20	-98	409	122	-70
High temperature	13,000	23,000	77	30	35	17	539	366	-32
Industrial maintenance	3,078,000	4,281,000	39	4,398	5,203	18	361	300	-17
Lacquer, clear and opaque	893,000	670,000	-25	2,366	1,663	-30	648	617	-5
Mastic texture	775,000	300,000	-61	245	98	-60	129	118	-9
Metallic pigmented	366,000	393,000	7	694	538	-22	456	358	-22
Nonflats, high gloss	2,017,000	2,151,000	7	2,015	1,439	-29	301	248	-18
Nonflats, medium gloss	14,116,000	15,630,000	11	5,422	4,477	-17	176	155	-12
Nonflats, low gloss	3,061,000	4,475,000	46	932	1,145	23	161	134	-17
Pre-treatment wash primer	21,000	72,000	243	58	31	-47	733	252	-66
Primers, sealers, & undercoaters (2)	5,788,000	6,263,000	8	3,233	3,055	-6	199	169	-15
Quick dry enamels	484,000	905,000	87	808	1,485	84	401	403	0
Quick dry primers, sealers, & undercoaters	377,000	1,913,000	407	454	2,172	378	340	303	-11
Roof	1,982,000	2,909,000	47	880	197	-78	128	23	-82
Sanding sealers	387,000	116,000	-70	1,051	307	-71	658	648	-2
Stains, clear and semitransparent	1,736,000	1,442,000	-17	2,211	2,061	-7	375	387	3
Stains, opaque	1,785,000	1,519,000	-15	767	522	-32	171	157	-8
Swimming pool, general	3,000	3,500	17	8	6	-25	572	406	-29
Traffic	4,237,000	2,883,000	-32	1,901	1,340	-30	129	154	19
Varnish, clear and semitransparent	861,000	780,000	-9	1,482	1,154	-22	422	404	-4
Waterproofing sealers, clear	950,000	972,000	2	1,184	948	-20	345	347	1
Waterproofing sealers, opaque	74,000	98,000	32	94	78	-17	311	219	-30
Wood preservatives, below ground	37,000	3,500	-91	58	5	-91	377	352	-7
Wood preservatives, clear & semitransparent	264,000	370,000	40	359	332	-8	356	229	-36
Other Aggregated Specialty Categories (3, 4)	192,000	423,000	120	411	647	57	566	416	-27
Other (5)	473,000	205,000	-57	378	196	-48	223	239	7
Other Large Categories Unique to 1998 (6)	N/A	6,071,000	N/A	N/A	1,466	N/A	N/A	68	N/A
Total	77,053,000	87,496,000	14	38,618	36,297	-6			
Nonflats, combined	19,194,000	22,256,000	16	8,369	7,061	-16	187	160	-14

- 1 1993 survey based on 1990 sales data; 1998 survey based on 1996 sales data.
- 2 Primers, sealers, and undercoaters in 1998 data includes sealers.
- 3 Other Aggregated Specialty Categories in 1993 data includes bond breakers, clear fire retardant, magnesite cement, multi-color, opaque wood preservatives, clear shellacs, opaque shellacs, and swimming pool repair coatings.
- 4 Other Aggregated Specialty Categories in 1998 data includes anti-fouling, bond breakers, chalkboard resurfacers, extreme high durability, clear fire retardant, heat reactive, magnesite cement, multicolor, nuclear, repair and maintenance thermoplastic, rust preventative, clear shellacs, opaque shellacs, swimming pool repair, low solids stains, thermoplastic rubber and mastics, opaque wood preservatives, and low solids wood preservatives.
- 5 "Other" represents coatings that respondents could not classify according to any of the 39 or 57 coating categories surveyed in the 1993 and 1998 surveys, respectively.
- 6 Data aggregated for bituminous and floor coatings because these large categories are unique to the 1998 survey.

Table 8-3

Category	Solventborne											
	Volume (gallons)			Emissions (tons per year)			Sales Weighted Average VOC regulatory			Sales Weighted Average Percent by Volume Solids		
	1993	1998	% Change	1993	1998	% Change	1993	1998	% Change	1993	1998	% Change
Anti-graffiti	(3)	(3)	(3)	(3)	(3)	(3)	173	605	250	81	32	-61
Concrete curing compounds	29,000	12,000	-59	94	33	-65	794	677	-15	14	20	43
Dry fog	81,000	77,000	-5	125	113	-10	392	367	-6	43	51	19
Fire retardant, opaque	16,000	10,000	-38	25	11	-56	373	267	-28	53	72	36
Flats	61,000	28,000	-54	88	43	-51	362	373	3	47	51	9
Form release	6,000	11,000	83	15	11	-27	597	247	-59	32	12	-62
Graphic arts (sign)	(3)	(3)	(3)	(3)	(3)	(3)	412	183	-55	61	77	26
High temperature	13,000	23,000	77	30	35	17	539	367	-32	37	57	56
Industrial maintenance	2,837,000	3,902,000	38	4,301	5,070	18	374	313	-16	57	63	11
Lacquer, clear and opaque	845,000	626,000	-26	2,341	1,647	-30	668	647	-3	26	21	-20
Mastic texture	(3)	(3)	(3)	(3)	(3)	(3)	274	223	-19	58	53	-9
Metallic pigmented	355,000	273,000	-23	694	513	-26	470	456	-3	53	45	-15
Nonflats, high gloss	1,330,000	532,000	-60	1,734	813	-53	348	366	5	61	53	-13
Nonflats, medium gloss	1,471,000	522,000	-65	1,723	625	-64	298	286	-4	67	64	-5
Nonflats, low gloss	94,000	34,000	-64	147	49	-67	384	341	-11	53	56	5
Pre-treatment wash primer	(3)	(3)	(3)	(3)	(3)	(3)	740	716	-3	8	10	19
Primers, sealers, & undercoaters (2)	1,871,000	1,573,000	-16	2,504	2,260	-10	371	357	-4	54	52	-5
Quick dry enamels	483,000	905,000	87	808	1,485	84	402	403	0	56	50	-10
Quick dry primers, sealers, & undercoaters	285,000	1,076,000	278	438	1,929	340	418	432	3	46	45	-3
Roof	617,000	116,000	-81	674	124	-82	263	259	-2	70	67	-4
Sanding sealers	378,000	111,000	-71	1,048	306	-71	667	665	0	23	19	-17
Shellacs, opaque	(3)	(3)	(3)	(3)	(3)	(3)	544	534	-2	34	31	-8
Stains, clear and semitransparent	1,163,000	1,008,000	-13	2,037	1,883	-8	432	449	4	44	43	-4
Stains, opaque	258,000	127,000	-51	422	196	-54	395	370	-6	51	52	2
Swimming pool, general	(3)	(3)	(3)	(3)	(3)	(3)	572	438	-23	31	49	56
Traffic	3,200,000	885,000	-72	1,563	723	-54	132	222	68	79	63	-21
Varnish, clear and semitransparent	816,000	546,000	-33	1,467	1,051	-28	434	462	7	44	43	-2
Waterproofing sealers, clear	681,000	569,000	-16	1,162	852	-27	418	360	-14	41	54	32
Waterproofing sealers, opaque	55,000	48,000	-13	92	63	-32	399	319	-20	49	45	-8
Wood preservatives, below ground	(3)	(3)	(3)	(3)	(3)	(3)	377	352	-7	51	55	7
Wood preservatives, clear & semitransparent	231,000	296,000	28	353	319	-10	367	258	-30	51	71	40
Other Aggregated Specialty Categories (4, 5)	928,100	437,000	-53	1,531	694	-55	587	480	-18	30	46	52
Other (6)	156,000	150,000	-4	322	190	-41	496	341	-31	48	57	20
Other Large Categories Unique to 1998 (7)	N/A	1,789,000	N/A	N/A	1,224	N/A	N/A	166	N/A	N/A	81	N/A
Total	18,260,000	15,686,000	-14	25,738	22,262	-14						
Nonflats, combined	2,895,000	1,088,000	-62	3,604	1,487	-59	324	327	1	64	58	-9

- 1 1993 survey based on 1990 sales data; 1998 survey based on 1996 sales data.
- 2 Primers, sealers, and undercoaters in 1998 data includes sealers.
- 3 Protected Data - fewer than three companies.
- 4 Other Aggregated Specialty Categories in 1993 data includes anti-graffiti, bond breakers, clear fire retardant, graphic arts, magnesite cement, mastic texture, multi-color, pre-treatment wash primers, below ground wood preservatives, opaque wood preservatives, clear shellacs, opaque shellacs, swimming pool, and swimming pool repair coatings.
- 5 Other Aggregated Specialty Categories in 1998 data includes anti-graffiti, anti-fouling, bond breakers, chalkboard resurfacers, extreme high durability, clear fire retardant, graphic arts, heat reactive, magnesite cement, mastic texture, multicolor, nuclear, pretreatment wash primers, repair and maintenance thermoplastic, rust preventative, clear shellacs, opaque shellacs, swimming pool, swimming pool repair, low solids stains, thermoplastic rubber and mastics, below ground wood preservatives, opaque wood preservatives, and low solids wood preservatives.
- 6 "Other" represents coatings that respondents could not classify according to any of the 39 or 57 coating categories surveyed in the 1993 and 1998 surveys, respectively.
- 7 Data aggregated for bituminous and floor coatings because these large categories are unique to the 1998 survey.

Table 8-4

Category	Waterborne												
	Volume (gallons)			Emissions (tons per year)			Sales Weighted Average VOC regulatory			Sales Weighted Average Percent by Volume Solids			
	1993	1998	% Change	1993	1998	% Change	1993	1998	% Change	1993	1998	% Change	
Anti-graffiti	(3)	(3)	(3)	(3)	(3)	(3)	123	92	-25	52	26	-50	
Concrete curing compounds	169,000	399,000	136	18	129	617	118	180	53	11	22	100	
Dry fog	24,000	126,000	425	5	60	1,100	76	182	139	33	36	8	
Fire retardant, opaque	7,000	46,000	557	0	6	N/A	26	46	77	46	56	22	
Flats	32,116,000	31,801,000	-1	5,889	5,267	-11	105	98	-7	39	35	-10	
Form release	4,000	72,000	1,700	1	0	-100	592	2	-100	2	0	-100	
Graphic arts (sign)	(3)	(3)	(3)	(3)	(3)	(3)	97	10	-90	41	35	-14	
Industrial maintenance	241,000	379,000	57	97	132	36	206	170	-17	38	35	-9	
Lacquer, clear and opaque	48,000	44,000	-8	25	16	-36	302	181	-40	29	34	20	
Mastic texture	(3)	(3)	(3)	(3)	(3)	(3)	88	79	-10	50	51	2	
Metallic pigmented	11,000	120,000	991	0	25	N/A	18	137	661	56	31	-44	
Nonflats, high gloss	687,000	1,619,000	136	281	626	123	211	209	-1	39	35	-11	
Nonflats, medium gloss	12,645,000	15,108,000	19	3,699	3,852	4	162	151	-7	37	36	-2	
Nonflats, low gloss	2,967,000	4,441,000	50	785	1,096	40	154	133	-14	37	36	-3	
Pre-treatment wash primer	(3)	(3)	(3)	(3)	(3)	(3)	702	248	-65	1	49	4,800	
Primers, sealers, & undercoaters (2)	3,917,000	4,690,000	20	729	794	9	117	105	-10	35	32	-9	
Quick dry primers, sealers, & undercoaters	92,000	837,000	810	16	243	1,419	97	136	40	38	41	7	
Roof	1,365,000	2,793,000	105	206	73	-65	67	13	-81	44	44	-1	
Sanding sealers	9,000	5,000	-44	3	1	-67	294	281	-4	23	16	-29	
Stains, clear and semitransparent	574,000	434,000	-24	174	178	2	258	242	-6	18	24	31	
Stains, opaque	1,528,000	1,392,000	-9	345	327	-5	133	138	4	36	34	-6	
Traffic	1,037,000	1,998,000	93	338	616	82	121	124	2	55	56	2	
Varnish, clear and semitransparent	45,000	234,000	420	15	104	593	206	270	31	28	29	4	
Waterproofing sealers, clear	268,000	404,000	51	22	96	336	158	330	109	10	11	13	
Waterproofing sealers, opaque	19,000	50,000	163	2	15	650	58	124	114	47	48	3	
Wood preservatives, clear & semitransparent	32,000	74,000	131	6	13	117	280	113	-60	16	44	175	
Other Aggregated Specialty Categories (4, 5)	673,705	408,000	-39	167	115	-31	546	253	-54	17	20	20	
Other (6)	317,000	55,000	-83	56	6	-89	88	62	-30	44	35	-20	
Other Large Categories Unique to 1998 (7)	N/A	4,281,000	N/A	N/A	241	N/A	N/A	28	N/A	N/A	45	N/A	
Total	58,796,000	71,810,000	22	12,879	14,031	9							
Nonflats, combined	16,299,000	21,168,000	30	4,765	5,574	17	163	152	-7	37	36	-3	

- 1 1993 survey based on 1990 sales data; 1998 survey based on 1996 sales data.
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- 3 Protected Data - fewer than three companies.
- 4 Other Aggregated Specialty Categories in 1993 data includes anti-graffiti, bond breakers, clear fire retardant, graphic arts, magnesite cement, mastic texture, multi-color, quick-dry enamels, clear shellacs, opaque shellacs, swimming pool, swimming pool repair, below ground wood preservatives, and opaque wood preservatives.
- 5 Other Aggregated Specialty Categories in 1998 data includes anti-fouling, anti-graffiti, bond breakers, chalkboard resurfacers, extreme high durability, clear fire retardant, graphic arts, heat reactive, magnesite cement, mastic texture, multicolor, nuclear, quick-dry enamels, repair and maintenance thermoplastic, rust preventative, clear shellacs, opaque shellacs, swimming pool, swimming pool repair, low solids stains, thermoplastic rubber and mastics, below ground wood preservatives, opaque wood preservatives, and low solids wood preservatives.
- 6 "Other" represents coatings that respondents could not classify according to any of the 39 or 57 coating categories surveyed in the 1993 and 1998 surveys, respectively.
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